



# Volunteer Lake Assessment Program Individual Lake Reports

## SUNAPEE LAKE, SUNAPEE, NH

### MORPHOMETRIC DATA

Watershed Area (Ac.):	28,863	Max. Depth (m):	31.9	Flushing Rate (yr <sup>-1</sup> )	0.3
Surface Area (Ac.):	4090	Mean Depth (m):	11.4	P Retention Coef:	0.7
Shore Length (m):	47,600	Volume (m <sup>3</sup> ):	188,150,000	Elevation (ft):	1092

### TROPHIC CLASSIFICATION

Year	Trophic class
1995	OLIGOTROPHIC
2006	OLIGOTROPHIC

### KNOWN EXOTIC SPECIES

Variable Milfoil

The Waterbody Report Card tables are generated from the 2012 305(b) report on the status of N.H. waters, and are based on data collected from 2001-2011.

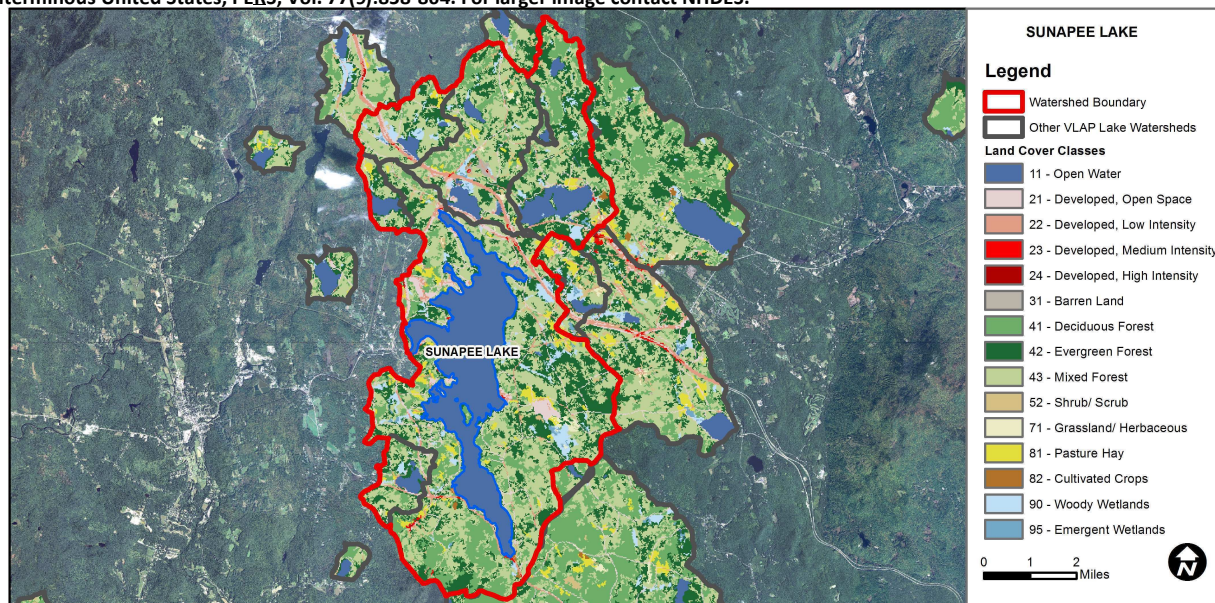
Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Good	>=5 samples and median is < threshold but > 1/2 threshold value.
	pH	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	D.O. (mg/L)	Bad	>10%, with a minimum of 2, samples exceed criteria, with 1 or more by a large margin.
	D.O. (% sat)	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	Chlorophyll-a	Very Good	>5 samples and median is < 1/2 threshold.
Primary Contact Recreation	E. coli	Very Good	All bacteria samples <75% of geometric mean criteria, but not enough to calculate geometric mean. Or, all bacteria samples are < single sample criteria and calculated Geometric means are less than geometric mean criteria.
	Chlorophyll-a	Very Good	At least 10 samples with 0 exceedances of criteria.

### BEACH PRIMARY CONTACT ASSESSMENT STATUS

SUNAPEE LAKE - DEPOT BEACH	E. coli	Cautionary	One exceedance of single sample criteria but not enough data to calculate geometric mean. More data needed.
SUNAPEE LAKE - SUNAPEE STATE PARK BEACH	E. coli	Bad	>=1 exceedance(s) of geometric mean criterion and/or >=2 exceedances of single sample criterion, with 1 or more >2X criteria.
SUNAPEE LAKE - BLODGETT'S LANDING BEACH	E. coli	Bad	>=1 exceedance(s) of geometric mean criterion and/or >=2 exceedances of single sample criterion, with 1 or more >2X criteria.
SUNAPEE LAKE - DEWEY (TOWN) BEACH	E. coli	Bad	>=1 exceedance(s) of geometric mean criterion and/or >=2 exceedances of single sample criterion, with 1 or more >2X criteria.
SUNAPEE LAKE - GEORGES MILL TOWN BEACH	E. coli	Very Good	All bacteria samples <75% of geometric mean criteria, but not enough to calculate geometric mean. Or, all bacteria samples are < single sample criteria and calculated Geometric means are less than geometric mean criteria.

### WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.



Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	17.9	Barren Land	0.18	Grassland/Herbaceous	0.44
Developed-Open Space	4.66	Deciduous Forest	12.49	Pasture Hay	2.59
Developed-Low Intensity	2.83	Evergreen Forest	21.94	Cultivated Crops	0.15
Developed-Medium Intensity	0.24	Mixed Forest	31.84	Woody Wetlands	3.2
Developed-High Intensity	0.01	Shrub-Scrub	1.14	Emergent Wetlands	0.3



# VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

## LAKE SUNAPEE, STN 200, SUNAPEE, NH

### 2012 DATA SUMMARY

#### OBSERVATIONS AND RECOMMENDATIONS (Refer to Table 1 and Historical Deep Spot Data Graphic)

- ♣ **CHLOROPHYLL-A:** Chlorophyll levels remained stable throughout the summer and were much less than the NH lake median. Historical trend analysis indicates chlorophyll levels fluctuate from year to year.
- ♣ **CONDUCTIVITY/CHLORIDE:** Conductivity levels were slightly greater than the NH lake median; however average conductivity has decreased since 2006.
- ♣ **TOTAL PHOSPHORUS:** Epilimnetic (upper water layer) phosphorus levels remained stable throughout the summer and were less than the NH lake median; however average levels increased from 2011 and were the highest measured since monitoring began. Historical trend analysis indicates a significantly increasing (worsening) epilimnetic phosphorus level since 1993. Metalimnetic (middle water layer) and hypolimnetic (lower water layer) phosphorus were stable and low throughout the summer.
- ♣ **TRANSPARENCY:** Transparency improved as the summer progress and was much greater than the NH lake median. Historical trend analysis indicates a relatively stable transparency since monitoring began.
- ♣ **TURBIDITY:** Deep spot turbidity was relatively low with small spikes throughout the summer likely due to algal growth.
- ♣ **pH:** pH tends to fluctuate below desirable levels.
- ♣ **RECOMMENDED ACTIONS:** The increasing epilimnetic phosphorus trend is concerning. The increase in significant storm events in recent years likely has caused the increased phosphorus as stormwater runoff transports nutrients and other pollutants into the lake. Work with watershed towns and residents to reduce stormwater runoff into tributaries and the lake. Conduct chloride monitoring to establish a baseline data set for the lake.

Station Name	Table 1. 2012 Average Water Quality Data for STN 200						
	Alk. mg/l	Chlor-a ug/l	Cond. uS/cm	Total P ug/l	Trans. m	Turb. ntu	pH
					VS		
Epilimnion	6.53	1.2	82.2	6	8.47	0.79	6.56
Metalimnion			80.7	7		1.25	6.55
Hypolimnion			81.7	7		1.21	6.36

**NH Water Quality Standards:** Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.

**Chloride:** < 230 mg/L (chronic)

**E. coli:** > 88 cts/100 mL – public beach

**E. coli:** > 406 cts/100 mL – surface waters

**Turbidity:** > 10 NTU above natural level

**pH:** 6.5-8.0 (unless naturally occurring)

**NH Median Values:** Median values for specific parameters generated from historic lake monitoring data.

**Alkalinity:** 4.9 mg/L

**Chlorophyll-a:** 4.58 mg/m<sup>3</sup>

**Conductivity:** 40.0 uS/cm

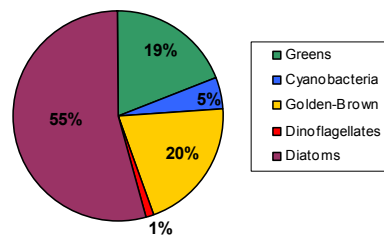
**Chloride:** 4 mg/L

**Total Phosphorus:** 12 ug/L

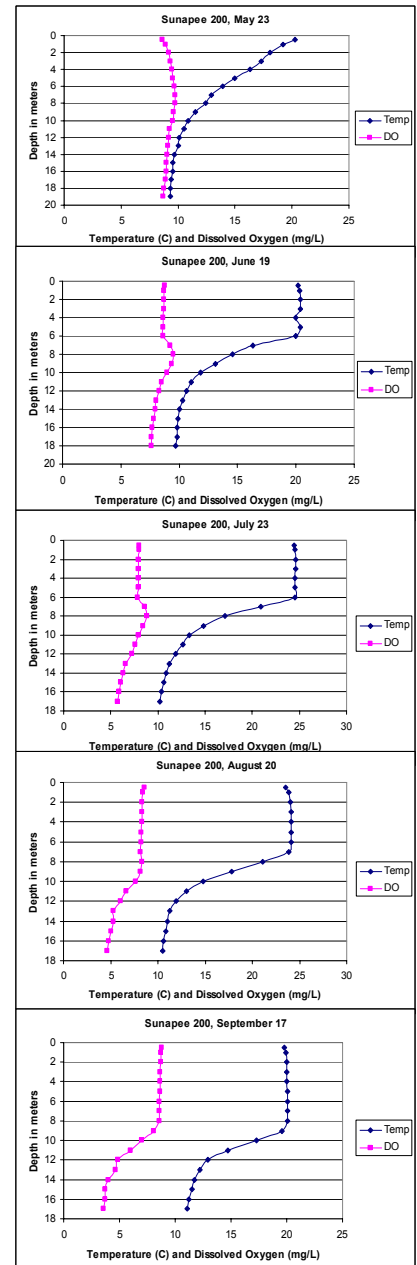
**Transparency:** 3.2 m

**pH:** 6.6

Lake Sunapee, Stn. 200  
2012 Phytoplankton Population



#### Dissolved Oxygen & Temperature Profile



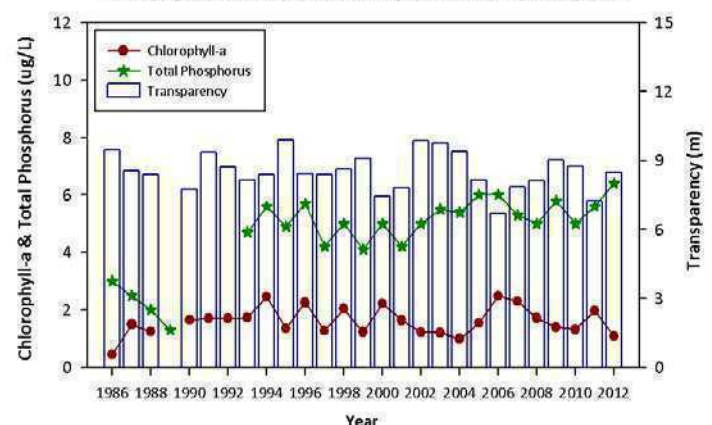
#### HISTORICAL WATER QUALITY TREND ANALYSIS

Parameter	Trend	Explanation
Chlorophyll-a	Variable	Data fluctuate annually, but are not significantly increasing or decreasing.
Transparency	Stable	Data not significantly increasing or decreasing.
Phosphorus (epilimnion)	Degrading	Data significantly increasing (worsening).

This report was generated by the NH DES Volunteer Lake Assessment Program (VLAP). For more information contact:  
Sara Steiner  
PO Box 95  
Concord, NH 03302-0095  
(603) 271-2658  
sara.steiner@des.nh.gov



Historical Deep Spot  
Chlorophyll-a, Epilimnetic Total Phosphorus & Transparency Data







# Volunteer Lake Assessment Program Individual Lake Reports

## SUNAPEE LAKE, SUNAPEE, NH

### MORPHOMETRIC DATA

Watershed Area (Ac.):	28,863	Max. Depth (m):	31.9	Flushing Rate (yr <sup>-1</sup> )	0.3
Surface Area (Ac.):	4090	Mean Depth (m):	11.4	P Retention Coef:	0.7
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Variable Milfoil

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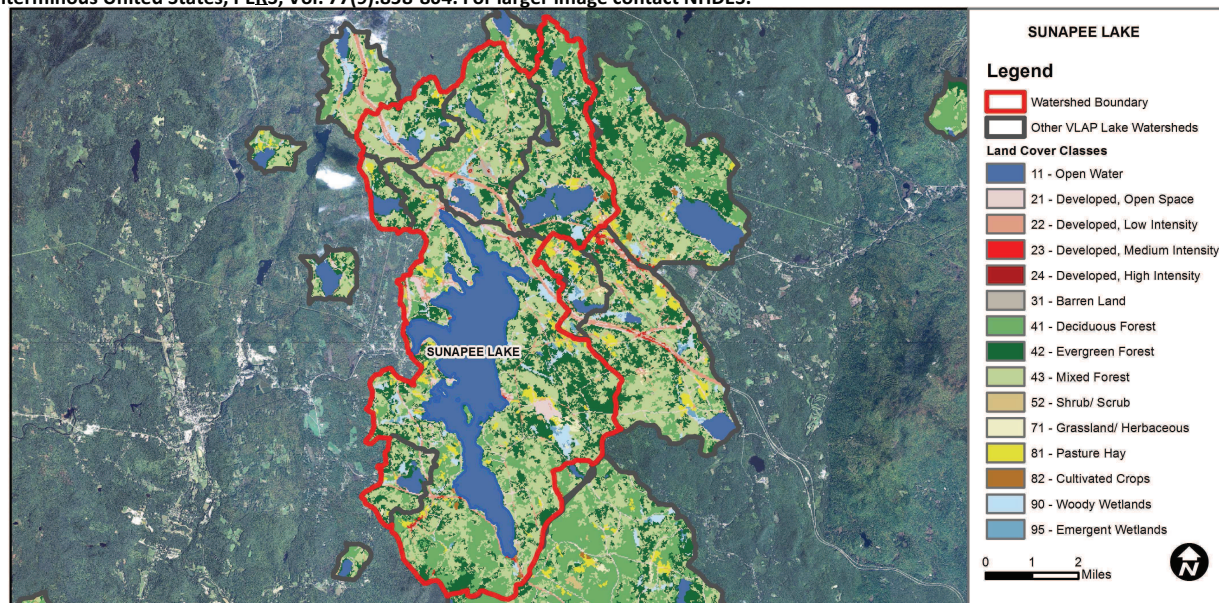
Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Good	>=5 samples and median is < threshold but > 1/2 threshold value.
	pH	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	D.O. (mg/L)	Bad	>10%, with a minimum of 2, samples exceed criteria, with 1 or more by a large margin.
	D.O. (% sat)	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	Chlorophyll-a	Very Good	>5 samples and median is < 1/2 threshold.
Primary Contact Recreation	E. coli	Very Good	All bacteria samples <75% of geometric mean criteria, but not enough to calculate geometric mean. Or, all bacteria samples are < single sample criteria and calculated Geometric means are less than geometric mean criteria.
	Chlorophyll-a	Very Good	At least 10 samples with 0 exceedances of criteria.

### BEACH PRIMARY CONTACT ASSESSMENT STATUS

SUNAPEE LAKE - DEPOT BEACH	E. coli	Cautionary	One exceedance of single sample criteria but not enough data to calculate geometric mean. More data needed.
SUNAPEE LAKE - SUNAPEE STATE PARK BEACH	E. coli	Bad	>=1 exceedance(s) of geometric mean criterion and/or >=2 exceedances of single sample criterion, with 1 or more >2X criteria.
SUNAPEE LAKE - BLODGETT'S LANDING BEACH	E. coli	Bad	>=1 exceedance(s) of geometric mean criterion and/or >=2 exceedances of single sample criterion, with 1 or more >2X criteria.
SUNAPEE LAKE - DEWEY (TOWN) BEACH	E. coli	Bad	>=1 exceedance(s) of geometric mean criterion and/or >=2 exceedances of single sample criterion, with 1 or more >2X criteria.
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Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	17.9	Barren Land	0.18	Grassland/Herbaceous	0.44
Developed-Open Space	4.66	Deciduous Forest	12.49	Pasture Hay	2.59
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Developed-Medium Intensity	0.24	Mixed Forest	31.84	Woody Wetlands	3.2
Developed-High Intensity	0.01	Shrub-Scrub	1.14	Emergent Wetlands	0.3



# VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

## LAKE SUNAPEE, STN 210, SUNAPEE, NH

### 2012 DATA SUMMARY

#### OBSERVATIONS AND RECOMMENDATIONS (Refer to Table 1 and Historical Deep Spot Data Graphic)

- CHLOROPHYLL-A:** Chlorophyll levels decreased slightly from 2011, were low throughout the summer, and were less than the NH lake median. Historical trend analysis indicates a relatively stable chlorophyll since 1990.
- CONDUCTIVITY/CHLORIDE:** Conductivity levels were slightly greater than the NH lake median likely due to development and roadways in the watershed.
- TOTAL PHOSPHORUS:** Deep spot phosphorus levels were stable and low throughout the summer, and were less than the NH lake median. Historical trend analysis indicates a relatively stable epilimnetic (upper water layer) phosphorus level since 1993.
- TRANSPARENCY:** Transparency improved as the summer progressed, was great than 2011, and was much greater than the NH lake median. Historical trend analysis indicates a relatively stable transparency since 1990.
- TURBIDITY:** Deep spot turbidity was low throughout the summer.
- pH:** pH tends to fluctuate below desirable levels.
- RECOMMENDED ACTIONS:** Conduct chloride monitoring to establish a baseline data set for the lake. Phosphorus has remained stable at this station since 2004; however it is always important to educate watershed residents on ways to reduce pollutant loading to the lake.

Station Name	Table 1. 2012 Average Water Quality Data for STN 210						
	Alk. mg/l	Chlor-a ug/l	Cond. uS/cm	Total P ug/l	Trans. m	Turb. ntu	pH
					VS		
Epilimnion	5.87	1.27	82.9	5	8.67	0.57	6.41
Metalimnion			81.2	7		0.80	6.47
Hypolimnion			81.8	7		0.86	6.21

**NH Water Quality Standards:** Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.

**Chloride:** < 230 mg/L (chronic)

**E. coli:** > 88 cts/100 mL – public beach

**E. coli:** > 406 cts/100 mL – surface waters

**Turbidity:** > 10 NTU above natural level

**pH:** 6.5-8.0 (unless naturally occurring)

**NH Median Values:** Median values for specific parameters generated from historic lake monitoring data.

**Alkalinity:** 4.9 mg/L

**Chlorophyll-a:** 4.58 mg/m<sup>3</sup>

**Conductivity:** 40.0 uS/cm

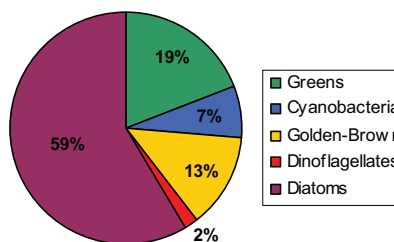
**Chloride:** 4 mg/L

**Total Phosphorus:** 12 ug/L

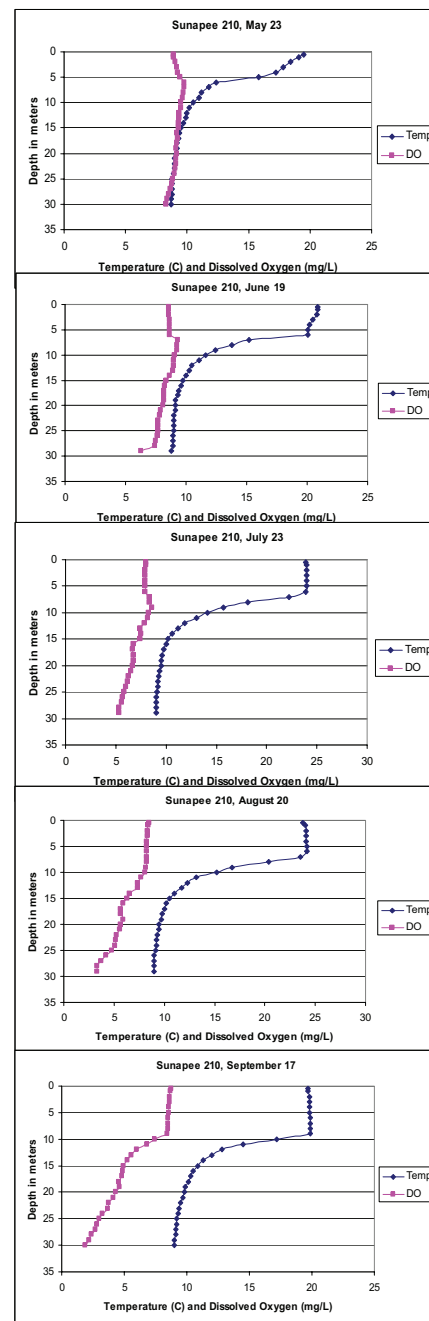
**Transparency:** 3.2 m

**pH:** 6.6

Lake Sunapee, Stn. 210  
2012 Phytoplankton Population



#### Dissolved Oxygen & Temperature Profile



#### HISTORICAL WATER QUALITY TREND ANALYSIS

Parameter	Trend	Explanation
Chlorophyll-a	Stable	Data not significantly increasing or decreasing.
Transparency	Stable	Data not significantly increasing or decreasing.
Phosphorus (epilimnion)	Stable	Data not significantly increasing or decreasing.

This report was generated by the NH DES Volunteer Lake Assessment Program (VLAP). For more information contact:

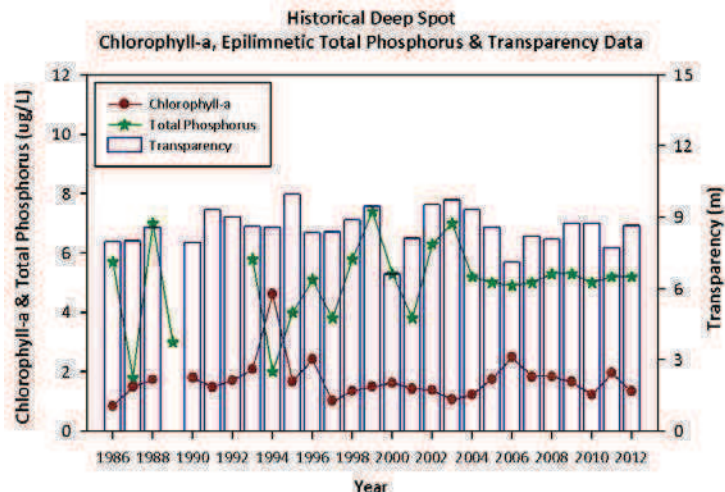
Sara Steiner

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# Volunteer Lake Assessment Program Individual Lake Reports

## SUNAPEE LAKE, SUNAPEE, NH

### MORPHOMETRIC DATA

Watershed Area (Ac.):	28,863	Max. Depth (m):	31.9	Flushing Rate (yr <sup>-1</sup> )	0.3
Surface Area (Ac.):	4090	Mean Depth (m):	11.4	P Retention Coef:	0.7
Shore Length (m):	47,600	Volume (m <sup>3</sup> ):	188,150,000	Elevation (ft):	1092

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2006	OLIGOTROPHIC

### KNOWN EXOTIC SPECIES

Variable Milfoil

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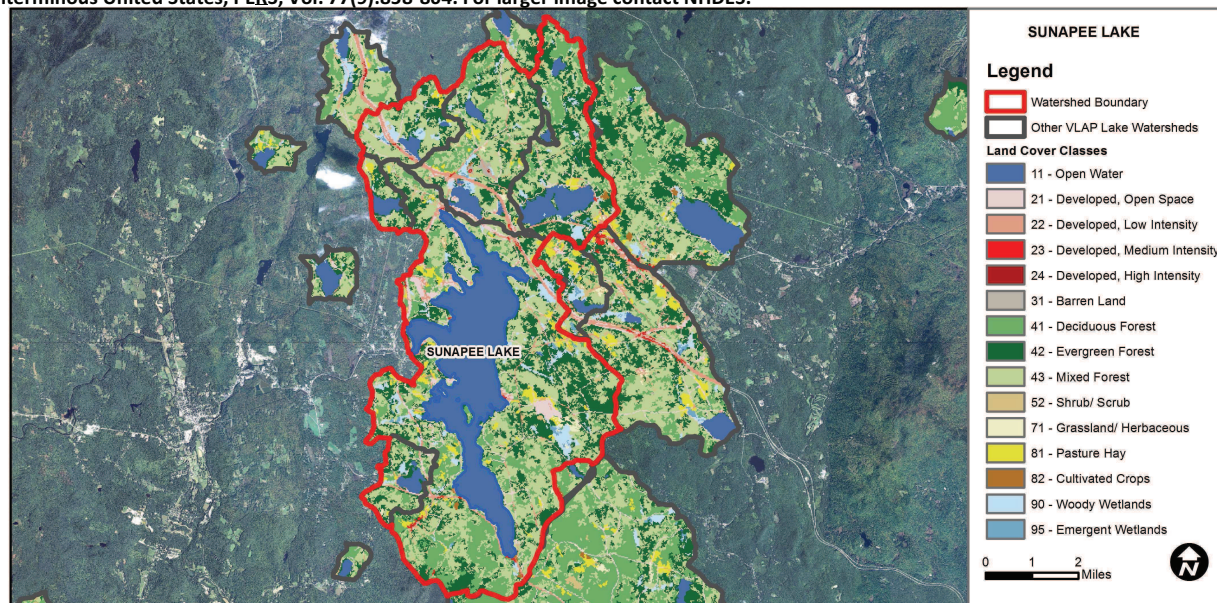
Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Good	>=5 samples and median is < threshold but > 1/2 threshold value.
	pH	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	D.O. (mg/L)	Bad	>10%, with a minimum of 2, samples exceed criteria, with 1 or more by a large margin.
	D.O. (% sat)	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	Chlorophyll-a	Very Good	>5 samples and median is < 1/2 threshold.
Primary Contact Recreation	E. coli	Very Good	All bacteria samples <75% of geometric mean criteria, but not enough to calculate geometric mean. Or, all bacteria samples are < single sample criteria and calculated Geometric means are less than geometric mean criteria.
	Chlorophyll-a	Very Good	At least 10 samples with 0 exceedances of criteria.

### BEACH PRIMARY CONTACT ASSESSMENT STATUS

SUNAPEE LAKE - DEPOT BEACH	E. coli	Cautionary	One exceedance of single sample criteria but not enough data to calculate geometric mean. More data needed.
SUNAPEE LAKE - SUNAPEE STATE PARK BEACH	E. coli	Bad	>=1 exceedance(s) of geometric mean criterion and/or >=2 exceedances of single sample criterion, with 1 or more >2X criteria.
SUNAPEE LAKE - BLODGETT'S LANDING BEACH	E. coli	Bad	>=1 exceedance(s) of geometric mean criterion and/or >=2 exceedances of single sample criterion, with 1 or more >2X criteria.
SUNAPEE LAKE - DEWEY (TOWN) BEACH	E. coli	Bad	>=1 exceedance(s) of geometric mean criterion and/or >=2 exceedances of single sample criterion, with 1 or more >2X criteria.
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### WATERSHED LAND USE SUMMARY

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Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	17.9	Barren Land	0.18	Grassland/Herbaceous	0.44
Developed-Open Space	4.66	Deciduous Forest	12.49	Pasture Hay	2.59
Developed-Low Intensity	2.83	Evergreen Forest	21.94	Cultivated Crops	0.15
Developed-Medium Intensity	0.24	Mixed Forest	31.84	Woody Wetlands	3.2
Developed-High Intensity	0.01	Shrub-Scrub	1.14	Emergent Wetlands	0.3



# VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

## LAKE SUNAPEE, STN 220, SUNAPEE, NH

### 2012 DATA SUMMARY

#### OBSERVATIONS AND RECOMMENDATIONS (Refer to Table 1 and Historical Deep Spot Data Graphic)

- ♣ **CHLOROPHYLL-A:** Chlorophyll levels remained stable throughout the summer, decreased slightly from 2011, and were much less than the NH lake median. Historical trend analysis indicates chlorophyll levels tend to fluctuate from year to year.
- ♣ **CONDUCTIVITY/CHLORIDE:** Conductivity levels were slightly greater than the NH lake median likely due to development and roadways in the watershed.
- ♣ **TOTAL PHOSPHORUS:** Epilimnetic (upper water layer) phosphorus levels were low, increased slightly from 2011, and were less than the NH lake median. Historical trend analysis indicates epilimnetic (upper water layer) phosphorus tends to fluctuate from year to year. Metalimnetic (middle water layer) and hypolimnetic (lower water layer) phosphorus levels were low throughout the summer.
- ♣ **TRANSPARENCY:** Transparency improved as the summer progressed, was greater than 2011, and was much greater than the NH lake median. Historical trend analysis indicates a relatively stable transparency since monitoring began.
- ♣ **TURBIDITY:** Metalimnetic and hypolimnetic turbidity increased slightly on occasion likely due to algal growth or sediment.
- ♣ **pH:** pH tends to fluctuate below desirable levels.
- ♣ **RECOMMENDED ACTIONS:** Conduct chloride monitoring to establish a baseline data set for the lake. It is important to continually educate watershed residents on ways to reduce pollutant loading to the lake.

Station Name	Table 1. 2012 Average Water Quality Data for STN 220						
	Alk. mg/l	Chlor-a ug/l	Cond. uS/cm	Total P ug/l	Trans. m	Turb. ntu	pH
					VS		
Epilimnion	5.98	1.22	78.8	6	8.47	0.49	6.51
Metalimnion			77.8	6		0.93	6.53
Hypolimnion			85.8	8		0.91	6.07

**NH Median Values:** Median values for specific parameters generated from historic lake monitoring data.

**Alkalinity:** 4.9 mg/L

**Chlorophyll-a:** 4.58 mg/m<sup>3</sup>

**Conductivity:** 40.0 uS/cm

**Chloride:** 4 mg/L

**Total Phosphorus:** 12 ug/L

**Transparency:** 3.2 m

**pH:** 6.6

**NH Water Quality Standards:** Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.

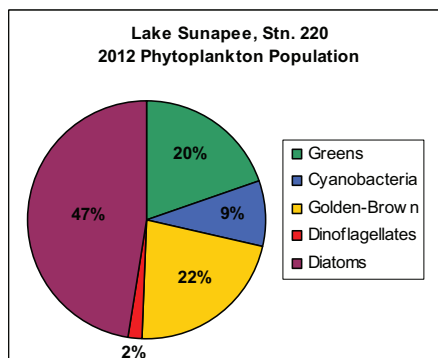
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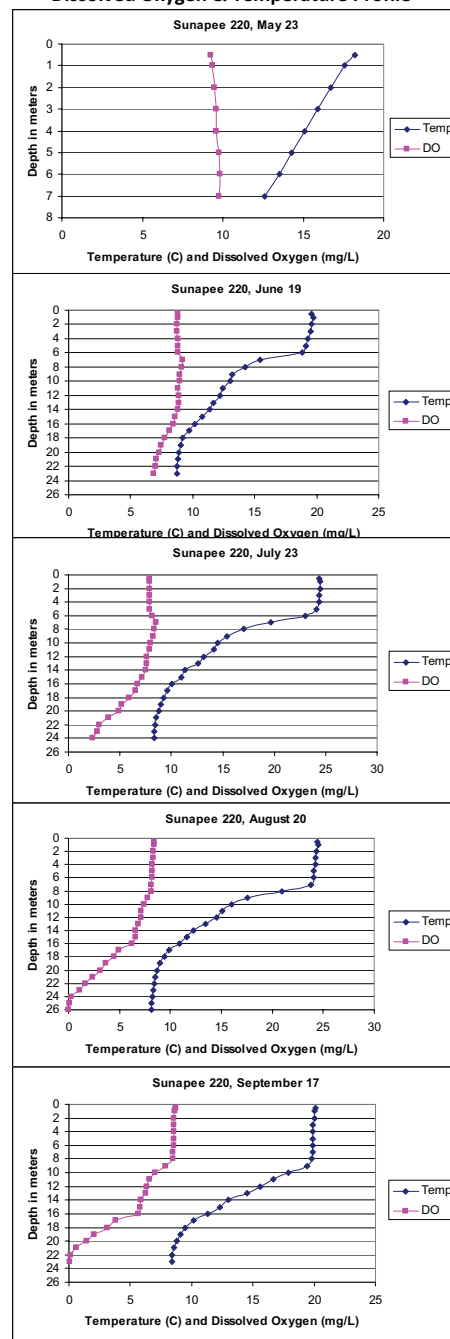
**E. coli:** > 406 cts/100 mL – surface waters

**Turbidity:** > 10 NTU above natural level

**pH:** 6.5-8.0 (unless naturally occurring)



#### Dissolved Oxygen & Temperature Profile



#### HISTORICAL WATER QUALITY TREND ANALYSIS

Parameter	Trend	Explanation
Chlorophyll-a	Variable	Data fluctuate annually, but are not significantly increasing or decreasing.
Transparency	Stable	Data not significantly increasing or decreasing.
Phosphorus (epilimnion)	Variable	Data fluctuate annually, but are not significantly increasing or decreasing.

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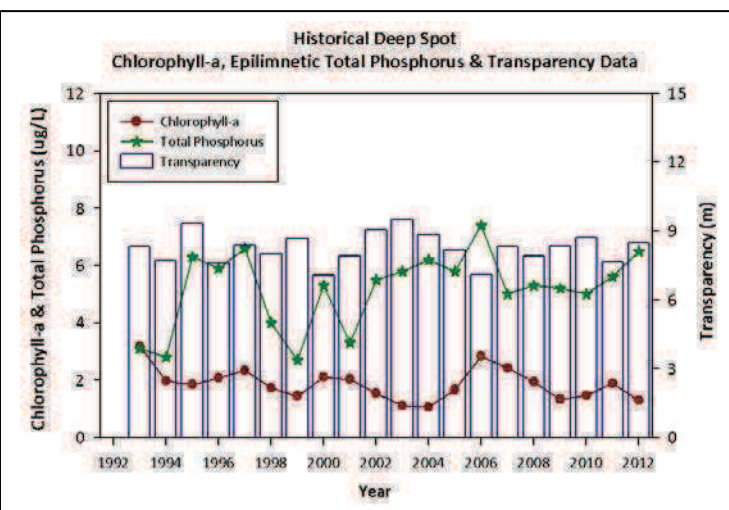
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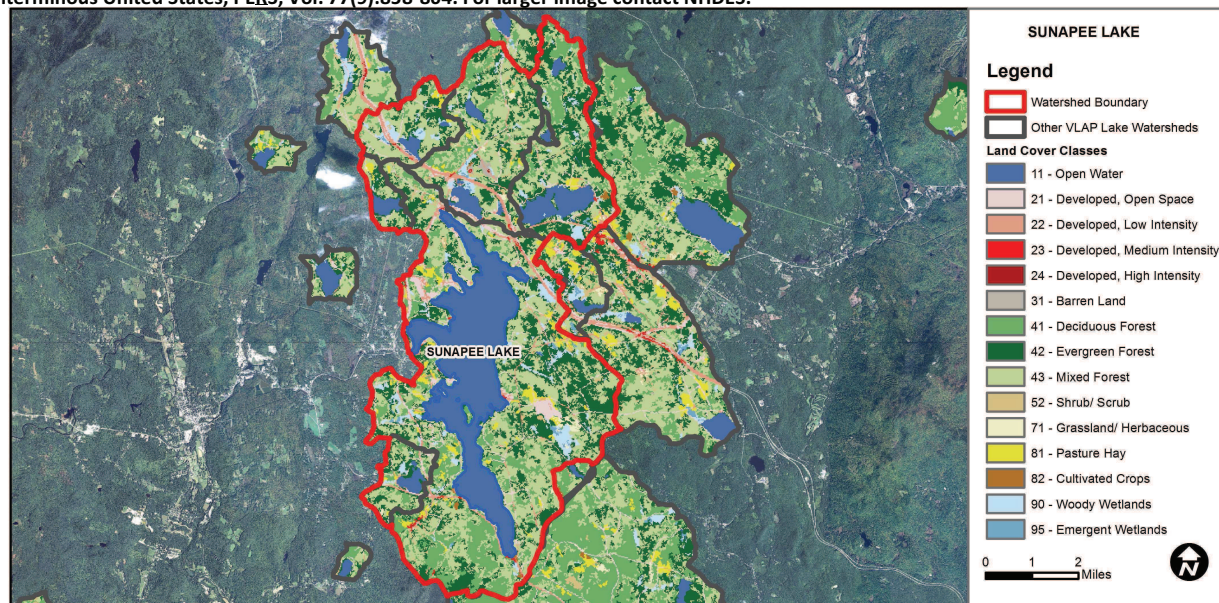
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# VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

## LAKE SUNAPEE, STN 230, SUNAPEE, NH

### 2012 DATA SUMMARY

#### OBSERVATIONS AND RECOMMENDATIONS (Refer to Table 1 and Historical Deep Spot Data Graphic)

- ♣ **CHLOROPHYLL-A:** Chlorophyll levels remained stable throughout the summer, decreased slightly from 2011, and were much less than the NH lake median. Historical trend analysis indicates chlorophyll levels tend to fluctuate from year to year.
- ♣ **CONDUCTIVITY/CHLORIDE:** Conductivity levels were slightly greater than the NH lake median likely due to development and roadways in the watershed.
- ♣ **TOTAL PHOSPHORUS:** Epilimnetic (upper water layer) phosphorus levels were low, increased slightly from 2011, and were much less than the NH lake median. Historical trend analysis indicates epilimnetic phosphorus fluctuates from year to year. Metalimnetic (middle water layer) and hypolimnetic (lower water layer) phosphorus levels were low throughout the summer.
- ♣ **TRANSPARENCY:** Transparency improved as the summer progressed, was slightly greater than 2011, and was much greater than the NH lake median. Historical trend analysis indicates a relatively stable transparency since monitoring began.
- ♣ **TURBIDITY:** Metalimnetic and hypolimnetic turbidity increased slightly on occasion likely due to algal growth or sediment.
- ♣ **pH:** pH tends to fluctuate below desirable levels.
- ♣ **RECOMMENDED ACTIONS:** Epilimnetic phosphorus has remained at a slightly higher level since 2002. The increase in significant storm events in recent years likely has caused the increase in phosphorus as stormwater runoff transports nutrients and other pollutants into the lake. Work with watershed towns and residents to reduce stormwater runoff into tributaries and the lake. Conduct chloride monitoring to establish a baseline data set for the lake.

Station Name	Table 1. 2012 Average Water Quality Data for STN 230						
	Alk. mg/l	Chlor-a ug/l	Cond. uS/cm	Total P ug/l	Trans. m	Turb. ntu	pH
					VS		
Epilimnion	6.20	1.29	82.2	6	8.15	0.47	6.46
Metalimnion			80.5	7		0.97	6.40
Hypolimnion			80.8	8		1.02	6.14

**NH Water Quality Standards:** Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.

**Chloride:** < 230 mg/L (chronic)

**E. coli:** > 88 cts/100 mL – public beach

**E. coli:** > 406 cts/100 mL – surface waters

**Turbidity:** > 10 NTU above natural level

**pH:** 6.5-8.0 (unless naturally occurring)

**NH Median Values:** Median values for specific parameters generated from historic lake monitoring data.

**Alkalinity:** 4.9 mg/L

**Chlorophyll-a:** 4.58 mg/m<sup>3</sup>

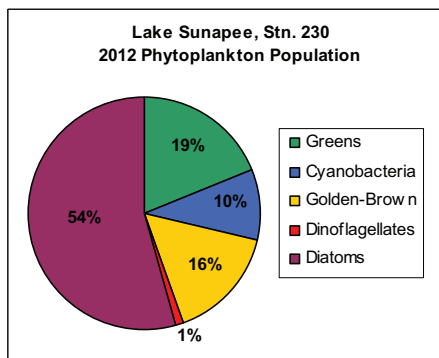
**Conductivity:** 40.0 uS/cm

**Chloride:** 4 mg/L

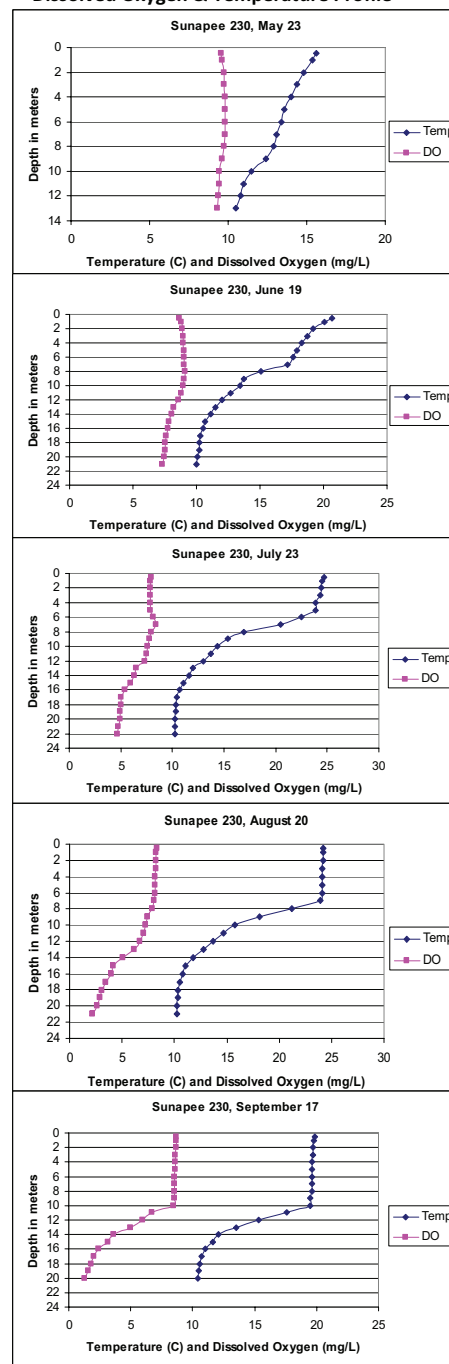
**Total Phosphorus:** 12 ug/L

**Transparency:** 3.2 m

**pH:** 6.6

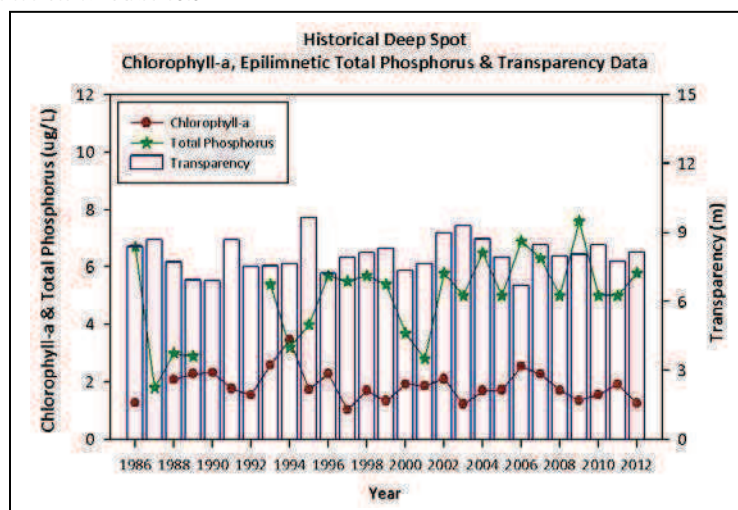


#### Dissolved Oxygen & Temperature Profile



#### HISTORICAL WATER QUALITY TREND ANALYSIS

Parameter	Trend	Explanation
Chlorophyll-a	Variable	Data fluctuate annually, but are not significantly increasing or decreasing.
Transparency	Stable	Data not significantly increasing or decreasing.
Phosphorus (epilimnion)	Variable	Data fluctuate annually, but are not significantly increasing or decreasing.



This report was generated by the NH DES Volunteer Lake Assessment Program (VLAP). For more information contact:

Sara Steiner  
PO Box 95  
Concord, NH 03302-0095  
(603) 271-2658  
sara.steiner@des.nh.gov







# Volunteer Lake Assessment Program Individual Lake Reports

## SUNAPEE LAKE, SUNAPEE, NH

### MORPHOMETRIC DATA

Watershed Area (Ac.):	28,863	Max. Depth (m):	31.9	Flushing Rate (yr <sup>-1</sup> )	0.3
Surface Area (Ac.):	4090	Mean Depth (m):	11.4	P Retention Coef:	0.7
Shore Length (m):	47,600	Volume (m <sup>3</sup> ):	188,150,000	Elevation (ft):	1092

### TROPHIC CLASSIFICATION

Year	Trophic class
1995	OLIGOTROPHIC
2006	OLIGOTROPHIC

### KNOWN EXOTIC SPECIES

Variable Milfoil

The Waterbody Report Card tables are generated from the 2012 305(b) report on the status of N.H. waters, and are based on data collected from 2001-2011.

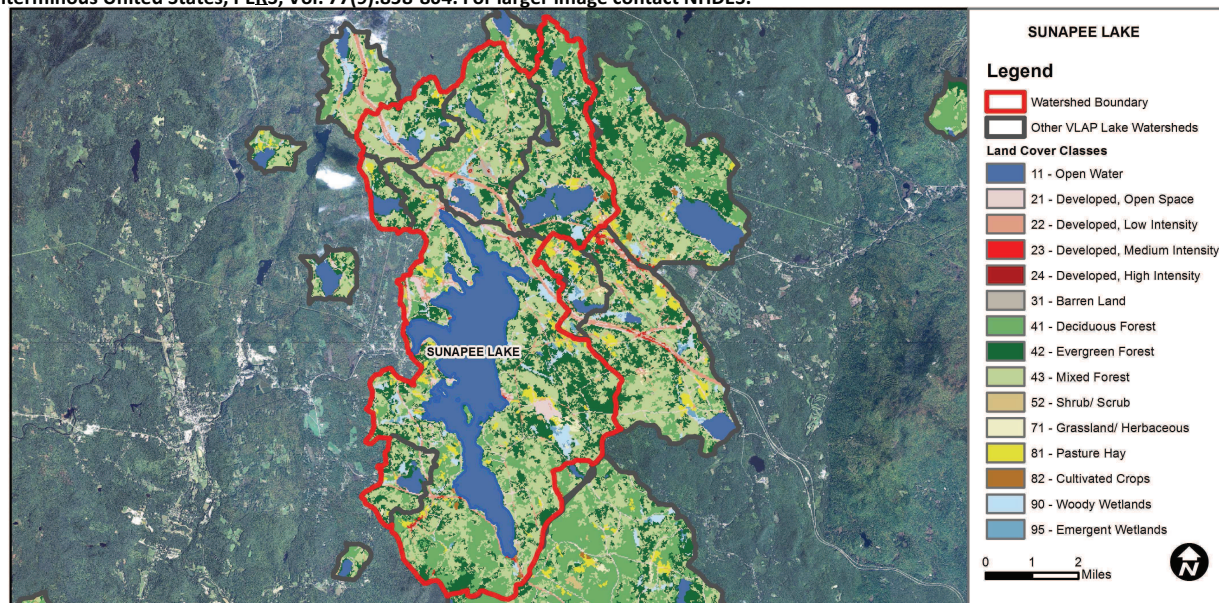
Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Good	>=5 samples and median is < threshold but > 1/2 threshold value.
	pH	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	D.O. (mg/L)	Bad	>10%, with a minimum of 2, samples exceed criteria, with 1 or more by a large margin.
	D.O. (% sat)	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	Chlorophyll-a	Very Good	>5 samples and median is < 1/2 threshold.
Primary Contact Recreation	E. coli	Very Good	All bacteria samples <75% of geometric mean criteria, but not enough to calculate geometric mean. Or, all bacteria samples are < single sample criteria and calculated Geometric means are less than geometric mean criteria.
	Chlorophyll-a	Very Good	At least 10 samples with 0 exceedances of criteria.

### BEACH PRIMARY CONTACT ASSESSMENT STATUS

SUNAPEE LAKE - DEPOT BEACH	E. coli	Cautionary	One exceedance of single sample criteria but not enough data to calculate geometric mean. More data needed.
SUNAPEE LAKE - SUNAPEE STATE PARK BEACH	E. coli	Bad	>=1 exceedance(s) of geometric mean criterion and/or >=2 exceedances of single sample criterion, with 1 or more >2X criteria.
SUNAPEE LAKE - BLODGETT'S LANDING BEACH	E. coli	Bad	>=1 exceedance(s) of geometric mean criterion and/or >=2 exceedances of single sample criterion, with 1 or more >2X criteria.
SUNAPEE LAKE - DEWEY (TOWN) BEACH	E. coli	Bad	>=1 exceedance(s) of geometric mean criterion and/or >=2 exceedances of single sample criterion, with 1 or more >2X criteria.
SUNAPEE LAKE - GEORGES MILL TOWN BEACH	E. coli	Very Good	All bacteria samples <75% of geometric mean criteria, but not enough to calculate geometric mean. Or, all bacteria samples are < single sample criteria and calculated Geometric means are less than geometric mean criteria.

### WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.



Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	17.9	Barren Land	0.18	Grassland/Herbaceous	0.44
Developed-Open Space	4.66	Deciduous Forest	12.49	Pasture Hay	2.59
Developed-Low Intensity	2.83	Evergreen Forest	21.94	Cultivated Crops	0.15
Developed-Medium Intensity	0.24	Mixed Forest	31.84	Woody Wetlands	3.2
Developed-High Intensity	0.01	Shrub-Scrub	1.14	Emergent Wetlands	0.3



# VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

## LAKE SUNAPEE, STNS 010, 020, 030, 070, 080, 090, 100.1, & 110

### 2012 DATA SUMMARY

#### OBSERVATIONS AND RECOMMENDATIONS (Refer to Table 1 and Historical Deep Spot Data Graphic)

- ♣ **CHLOROPHYLL-A:** Chlorophyll levels were low and well below the NH lake median values at all stations. Chlorophyll increased slightly at stations 020, 030, 100.1, and 110 as the summer progressed. However, average chlorophyll levels at all stations decreased from those measured in 2011. Historical trend analysis indicates chlorophyll fluctuates annually at all stations.
- ♣ **CONDUCTIVITY/CHLORIDE:** Conductivity at all stations was slightly greater than the NH lake median. Conductivity appears to have increased at all stations since monitoring began.
- ♣ **TOTAL PHOSPHORUS:** Phosphorus levels at Stations 010 and 020 were low and less than the NH lake median. Historical trend analysis indicates a relatively stable phosphorus level since monitoring began. Phosphorus levels at Station 030 were elevated in June (turbidity was elevated) and average phosphorus was greater than the NH lake median, however also decreased greatly from 2010 and 2011 levels. Historical trend analysis indicates phosphorus has significantly increased at 030. Phosphorus levels at Station 070 were relatively low and less than the NH lake median; however historical trend analysis indicates phosphorus has significantly increased. Phosphorus levels at Station 080 were greatly elevated in June (turbidity was elevated) however had decreased by July. Levels were much greater than the NH lake median, particularly since 2005. Historical trend analysis indicates phosphorus has significantly increased at 080. Phosphorus levels at Station 090 were elevated in June (turbidity was slightly elevated), however had decreased by July and August. Levels were greater than the NH lake median and historical trend analysis indicates phosphorus has significantly increased. Phosphorus levels at Station 100.1 were slightly elevated throughout the summer and greater than the NH lake median. Phosphorus levels at Station 110 were relatively low throughout the summer and less than the NH lake median, however historical trend analysis indicates phosphorus has significantly increased. Phosphorus levels have significantly increased (worsened) at five stations, and in particular phosphorus levels have been much greater at these stations since 2005.
- ♣ **TRANSPARENCY:** Average transparency at all stations was lower in June potentially due to stormwater runoff from rain events as lake levels were also high. In general, average transparency at all stations improved or remained stable from 2011. The Secchi disk was visible on the lake bottom at Stations 020, 030, 070, 080, 090, and 100.1 on at least one sampling event. Historical trend analysis indicates relatively stable transparency at Stations 020, 070, 080, and 090. Historical trend analysis indicates transparency fluctuates annually at stations 010, 030 and 110.
- ♣ **TURBIDITY:** Turbidity at Stations 020, 030, 070, 080, 090, and 100.1 was elevated in June, which likely contributed to the decreased transparency. Turbidity at Station 080 was elevated throughout the summer and sediment and organic material were noted in all samples. Please confirm that samples are free of sediment and organic material; if not, re-sample to collect a clean sample.
- ♣ **pH:** pH fluctuates below desirable levels at most stations.
- ♣ **RECOMMENDED ACTIONS:** Evaluate potential causes of the significantly increasing phosphorus levels, particularly since 2005. Potential causes could be an increase in significant storm events, increased stormwater velocity and flow through culverts and tributaries, lake drawdown and subsequent re-fill, road construction, and watershed development. Conduct chloride monitoring at all stations to establish a baseline data set.

Station Name	Table 1. 2012 Average Water Quality Data for NEARSHORE STNS					
	Chlor-a ug/l	Cond. uS/cm	Total P ug/l	Trans. m	Turb. ntu	pH
				VS		
010	1.43	86.1	6	8.85	1.00	6.61
020	1.22	81.9	9	4.30	1.04	6.41
030	1.24	83.6	20	8.43	1.95	6.62
070	1.10	83.9	8	6.44	1.40	6.25
080	1.09	87.5	114	3.03	7.62	6.28
090	1.05	84.4	20	6.77	1.22	6.65
100.1	1.22	85.1	18	7.57	1.81	6.64
110	1.20	83.9	8	7.02	1.49	6.45

**NH Water Quality Standards:** Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.

**Chloride:** < 230 mg/L (chronic)  
**E. coli:** > 88 cts/100 mL – public beach  
**E. coli:** > 406 cts/100 mL – surface waters  
**Turbidity:** > 10 NTU above natural level  
**pH:** 6.5-8.0 (unless naturally occurring)

**NH Median Values:** Median values for specific parameters generated from historic lake monitoring data.

**Alkalinity:** 4.9 mg/L  
**Chlorophyll-a:** 4.58 mg/m<sup>3</sup>  
**Conductivity:** 40.0 uS/cm  
**Chloride:** 4 mg/L  
**Total Phosphorus:** 12 ug/L  
**Transparency:** 3.2 m  
**pH:** 6.6

#### HISTORICAL WATER QUALITY TREND ANALYSIS

Station	Parameter	Trend	Explanation	Station	Parameter	Trend	Explanation
010	Chlorophyll-a	Variable	Data fluctuate annually.	080	Chlorophyll-a	Variable	Data fluctuate annually.
	Transparency	Variable	Data fluctuate annually.		Transparency	Stable	Data show little variability.
	Phosphorus	Stable	Data show little variability.		Phosphorus	<b>Degrading</b>	<b>Data significantly increasing.</b>
020	Chlorophyll-a	Variable	Data fluctuate annually.	090	Chlorophyll-a	Variable	Data fluctuate annually.
	Transparency	Stable	Data show little variability.		Transparency	Stable	Data show little variability.
	Phosphorus	Stable	Data show little variability.		Phosphorus	<b>Degrading</b>	<b>Data significantly increasing.</b>
030	Chlorophyll-a	Variable	Data fluctuate annually.	100.1	Chlorophyll-a	N/A	Need ten consecutive yrs. of data.
	Transparency	Variable	Data fluctuate annually.		Transparency	N/A	Need ten consecutive yrs. of data.
	Phosphorus	<b>Degrading</b>	<b>Data significantly increasing.</b>		Phosphorus	N/A	Need ten consecutive yrs. of data.
070	Chlorophyll-a	Variable	Data fluctuate annually.	110	Chlorophyll-a	Variable	Data fluctuate annually.
	Transparency	Stable	Data show little variability.		Transparency	Stable	Data show little variability.
	Phosphorus	<b>Degrading</b>	<b>Data significantly increasing.</b>		Phosphorus	<b>Degrading</b>	<b>Data significantly increasing.</b>





**VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS**  
**LAKE SUNAPEE, BLODGETT BROOK SUB-WATERSHED**  
**2012 DATA SUMMARY**

**OBSERVATIONS AND RECOMMENDATIONS BLODGETT BROOK SUB-WATERSHED** (*Refer to Table 1*)

- ♣ **CONDUCTIVITY/CHLORIDE:** Conductivity from Station 1115 (Chalk Pond Outlet) to 790 does not change significantly from upstream to downstream stations and is only slightly greater than the NH lake median. However, Station 788, S. Branch Blodgett Brook conductivity was elevated from July through October likely due to low water level and flow conditions.
- ♣ **TOTAL PHOSPHORUS:** Overall, 2012 phosphorus levels were average at stations 788 and 1115, and slightly above average at stations 790, 790.2 and 790.4. Phosphorus was elevated at Stn. 1115 in September and the turbidity was also elevated. Phosphorus was elevated at Stns. 790.2 and 790.4 in July, August and September likely due to low water level and flow conditions.
- ♣ **TURBIDITY:** Turbidity levels were fairly low for the majority of sampling events, however the May and September sampling events saw elevated turbidities at all Stns. Field data sheets note rain events prior to or during sampling on both dates.
- ♣ **pH:** pH levels generally lower at Stns. 1115 and 790.4 and tend to fluctuate below desirable levels at all stations.
- ♣ **RECOMMENDED ACTIONS:** Turbidity was generally elevated after rain events at all stations indicating stormwater erosion in the sub-watershed. Stns. 790, 790.2 and 790.4 exhibit higher phosphorus levels and it is recommended to conduct a stream survey to identify potential sources of phosphorus and erosion in the sub-watershed. Conduct chloride monitoring to establish a baseline data set for the tributary. Keep up the great work!

Table 1. 2012 Average Water Quality Data for Blodgett Brook Sub-Watershed

Sub-Watershed Name	Station Name	Cond.	Total P	Turb.	pH
		uS/cm	ug/l	ntu	
Blodgett Brook (S. Branch)	788	97.0	15	1.24	6.49
Blodgett Brook	790	55.0	20	1.73	6.32
Blodgett Brook	790.2	43.1	23	1.82	6.39
Blodgett Brook (South County Rd.)	790.4	53.3	29	1.82	5.90

**NH Median Values:** Median values for specific parameters generated from historic lake monitoring data.

**Alkalinity:** 4.9 mg/L  
**Chlorophyll-a:** 4.58 mg/m<sup>3</sup>  
**Conductivity:** 40.0 uS/cm  
**Chloride:** 4 mg/L  
**Total Phosphorus:** 12 ug/L  
**Transparency:** 3.2 m  
**pH:** 6.6

**NH Water Quality Standards:** Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.

**Chloride:** < 230 mg/L (chronic)  
**E. coli:** > 88 cts/100 mL – public beach  
**E. coli:** > 406 cts/100 mL – surface waters  
**Turbidity:** > 10 NTU above natural level  
**pH:** 6.5-8.0 (unless naturally occurring)

This report was generated by the NH DES Volunteer Lake Assessment Program (VLAP). For more information contact:  
Sara Steiner  
PO Box 95  
Concord, NH 03302-0095  
(603) 271-2658  
sara.steiner@des.nh.gov





**VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS**  
**LAKE SUNAPEE, CHANDLER BROOK AND JOHNSON BROOK SUB-WATERSHEDS**  
**2012 DATA SUMMARY**

**OBSERVATIONS AND RECOMMENDATIONS CHANDLER BROOK AND JOHNSON BROOK SUB-WATERSHEDS (Refer to Table 1)**

- ♣ **CONDUCTIVITY/CHLORIDE:** Conductivity was slightly elevated and greater than the NH lake median at Stns. 670 and 670.5 and increased from upstream (670.5) to downstream (670). Conductivity was generally low at Stn. 680 in May and June and then increased greatly for the remaining months. Conductivity was low at Stn. 675 in May, June and October, but elevated in July and August. Low flow and stagnant conditions can concentrate salts and minerals thereby elevating conductivity levels.
- ♣ **TOTAL PHOSPHORUS:** Phosphorus levels at all stations were low to average throughout the summer and decreased from 2011 levels at Stns. 670, 680 and 675.
- ♣ **TURBIDITY:** Turbidity levels at Stn. 670 were elevated in May, July and September. Small amounts of sediment and/or organic matter was noted in the samples. Turbidity was elevated at Stn. 670.5 in May, July, August, and October, following rain events and during low flow conditions. Beaver activity was noted upstream and also could contribute to elevated turbidity. Turbidity was elevated at Stn. 680 following rain events in May and October, and heavy sediment contamination during low flow in September. Turbidity was elevated at Stn. 675 in October following a rain event.
- ♣ **pH:** pH levels tended to fluctuate below desirable levels at all stations.
- ♣ **RECOMMENDED ACTIONS:** Turbidity was elevated after rain events at Stations 670.5, 680 and 675 indicating erosion from stormwater runoff. A stream survey and storm event sampling to identify potential sources of sediment erosion is recommended. Do not sample tributaries under stagnant conditions as this causes elevated levels of conductivity, phosphorus and turbidity. Keep up the great work!

Table 1. 2012 Average Water Quality Data for Chandler Brook and Johnson Brook

Sub-Watershed Name	Station Name	Cond.	Total P	Turb.	pH
		uS/cm	ug/l	ntu	
Chandler Brook	670	145.8	13	2.17	6.53
Chandler Brook	670.5	98.3	17	2.75	6.22
Chandler Brook (Beck Brook)	680	125.6	8	1.63	6.80
Johnson Brook	675	51.2	9	0.65	6.17

**NH Median Values:** Median values for specific parameters generated from historic lake monitoring data.

**Alkalinity:** 4.9 mg/L  
**Chlorophyll-a:** 4.58 mg/m<sup>3</sup>  
**Conductivity:** 40.0 uS/cm  
**Chloride:** 4 mg/L  
**Total Phosphorus:** 12 ug/L  
**Transparency:** 3.2 m  
**pH:** 6.6

**NH Water Quality Standards:** Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.

**Chloride:** < 230 mg/L (chronic)  
**E. coli:** > 88 cts/100 mL – public beach  
**E. coli:** > 406 cts/100 mL – surface waters  
**Turbidity:** > 10 NTU above natural level  
**pH:** 6.5-8.0 (unless naturally occurring)

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Sara Steiner  
PO Box 95  
Concord, NH 03302-0095  
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**VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS**  
**LAKE SUNAPEE, HERRICK COVE SUB-WATERSHED**  
**2012 DATA SUMMARY**

**OBSERVATIONS AND RECOMMENDATIONS HERRICK COVE SUB-WATERSHED** (Refer to Table 1)

- ♣ **CONDUCTIVITY/CHLORIDE:** Conductivity at all stations was elevated and much greater than the NH lake median. Conductivity was lower in May and June when stream flows were higher and tended to increase as the summer progressed and stream flows were lower. Conductivity at Stn. 835 was much higher in July and August. July field data sheet noted that it appeared fertilizer was applied within 10 ft. of the stream bank and conductivity levels reflect this.
- ♣ **TOTAL PHOSPHORUS:** Phosphorus levels at Stn. 830 were elevated from June through August, and turbidity was also elevated. Low to stagnant tributary flows and light to moderate sediment/organic matter were noted which likely contributed to the elevated phosphorus levels. However, phosphorus levels have significantly increased (worsened) at this station since monitoring began, and particularly phosphorus levels have been greater since 2005. Phosphorus levels at Stn. 830.15 were elevated in July and August, turbidity was elevated, stream flow was low to stagnant and sediment/organic matter were noted in the samples. Phosphorus levels at Stn. 830.15 have also been greater since 2005. Phosphorus levels were average at Stn. 830.2 and low throughout the summer at Stn. 835.
- ♣ **TURBIDITY:** Turbidity levels at Stn. 830 were elevated from June through September. Field data note a large amount of debris in the stream making sample collection difficult. This combined with low tributary flows contributed to sediment/organic matter in the samples. Turbidity levels at Stn. 830.15 were elevated in July and August during low to stagnant flow conditions which likely contributed to sediment/organic matter noted in the samples. Turbidity was low at Stns. 830.2 and 835.
- ♣ **pH:** pH levels were below desirable ranges at Stns. 830, 830.15 and 830.2 and were within desirable ranges at Stn. 835.
- ♣ **RECOMMENDED ACTIONS:** Phosphorus has significantly increased at Stn. 830 since monitoring began, and has been particularly high since 2005. Turbidity has also been greater at this station since 2001. Investigate potential sources of increased phosphorus and turbidity such as road erosion, development, agriculture. Another potential cause is sampler error. Do not sample tributaries if there is no flow (stagnant) or if the flow is too low to collect a sample free of sediment and/or organic matter. If necessary, consider moving a sample station to an area where there is better access and less debris impeding sampling. Also consider obtaining a Wetlands permit to remove debris from the tributary if deemed necessary to return the site to a more natural state. Keep up the great work!

Table 1. 2012 Average Water Quality Data for Herrick Cove North and South

Sub-Watershed Name	Station Name	Cond.	Total P	Turb.	pH
		uS/cm	ug/l	ntu	
Herrick Cove South	830	311.0	33	8.02	6.27
Herrick Cove South	830.15	376.0	28	7.31	6.15
Herrick Cove South	830.2	188.9	21	1.54	6.12
Herrick Cove North	835	726.8	8	0.97	6.86

**NH Median Values:** Median values for specific parameters generated from historic lake monitoring data.

**Alkalinity:** 4.9 mg/L  
**Chlorophyll-a:** 4.58 mg/m<sup>3</sup>  
**Conductivity:** 40.0 uS/cm  
**Chloride:** 4 mg/L  
**Total Phosphorus:** 12 ug/L  
**Transparency:** 3.2 m  
**pH:** 6.6

**NH Water Quality Standards:** Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.

**Chloride:** < 230 mg/L (chronic)  
**E. coli:** > 88 cts/100 mL – public beach  
**E. coli:** > 406 cts/100 mL – surface waters  
**Turbidity:** > 10 NTU above natural level  
**pH:** 6.5-8.0 (unless naturally occurring)

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Sara Steiner  
PO Box 95  
Concord, NH 03302-0095  
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**VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS**  
**LAKE SUNAPEE, LITTLE LAKE SUNAPEE SUB-WATERSHED**  
**2012 DATA SUMMARY**

**OBSERVATIONS AND RECOMMENDATIONS BLODGETT BROOK SUB-WATERSHED (Refer to Table 1)**

- ♣ **CONDUCTIVITY/CHLORIDE:** Conductivity is elevated and much greater than the NH lake median at Stns. 1415 and 1418. These stations receive runoff from various roadways and a salt storage facility. Management efforts are currently underway to reduce conductivity at these stations. Conductivity at Stn. 1410.5 was low and less than the NH lake median.
- ♣ **TOTAL PHOSPHORUS:** Phosphorus levels at Stn. 1420 were low throughout the summer. Phosphorus levels at Stn. 1410.5 were low in May and June and increased slightly in July, August and September due to low flow conditions. Phosphorus levels at Stn. 1415 were slightly above average throughout the summer, and elevated in June following a significant rain event. Rainfall and low stream flows likely contributed to phosphorus levels at Stn. 1415. Phosphorus levels at Stn. 1418 were elevated in July, August and October. July stream conditions were stagnant and turbidity was extremely elevated with contributed to the elevated phosphorus, low stream flows and turbidity also contributed to slightly elevated phosphorus measured in August and October.
- ♣ **TURBIDITY:** Turbidity levels at Stn. 1410.5 were slightly elevated in May and a small amount of sediment was noted in the sample. Turbidity levels at Stn. 1415 were elevated throughout the summer. Significant rainfall was noted in May and June, and low flow conditions were noted during the remained of the season. Turbidity levels at Stn. 1418 were elevated June following a significant rain event, in July during stagnant conditions, in August during low flow, and October following a rain event. Turbidity levels at Stn. 1420 were relatively low throughout the summer.
- ♣ **pH:** pH levels were generally lower at Stn. 1418 and tend to fluctuate below desirable levels at all stations.
- ♣ **RECOMMENDED ACTIONS:** Turbidity and/or phosphorus were elevated after rain events at Stations 1415 and 1418 indicating stormwater erosion in those sub-watersheds. A stream survey and storm event sampling to identify potential sources of phosphorus and sediment erosion is recommended. Keep up the great work!

Table 1. 2012 Average Water Quality Data for Little Lake Sunapee Sub-Watershed

Sub-Watershed Name	Station Name	Cond.	Total P	Turb.	pH
		uS/cm	ug/l	ntu	
Kidder Brook Upstream	1410.5	21.7	12	1.35	6.23
Bucklin Beach Brook	1415	615.2	17	4.57	6.69
Murray Pond Outlet	1418	309.9	26	6.43	5.95
Little Lake Sunapee Outlet	1420	71.9	8	1.10	6.49

**NH Median Values:** Median values for specific parameters generated from historic lake monitoring data.

**Alkalinity:** 4.9 mg/L

**Chlorophyll-a:** 4.58 mg/m<sup>3</sup>

**Conductivity:** 40.0 uS/cm

**Chloride:** 4 mg/L

**Total Phosphorus:** 12 ug/L

**Transparency:** 3.2 m

**pH:** 6.6

**NH Water Quality Standards:** Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.

**Chloride:** < 230 mg/L (chronic)

**E. coli:** > 88 cts/100 mL – public beach

**E. coli:** > 406 cts/100 mL – surface waters

**Turbidity:** > 10 NTU above natural level

**pH:** 6.5-8.0 (unless naturally occurring)

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Sara Steiner

PO Box 95

Concord, NH 03302-0095

(603) 271-2658

sara.steiner@des.nh.gov





VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS  
LAKE SUNAPEE, NEWBURY INLET, CUNNINGHAM & BARTLETT BROOKS  
2012 DATA SUMMARY

OBSERVATIONS AND RECOMMENDATIONS NEWBURY INLET, CUNNINGHAM & BARTLETT BROOKS (Refer to Table 1)

- ♣ **CONDUCTIVITY/CHLORIDE:** Conductivity was relatively low at all stations and approximately equal to or below the NH lake median.
- ♣ **TOTAL PHOSPHORUS:** Phosphorus levels were low at Stn. 720.1 in May and June before tributary went dry. Phosphorus levels at Stn. 750 were low on all sampling events. Phosphorus levels at Stn. 760 were higher in July and October likely due to low flow conditions and significant rainfall prior to sampling.
- ♣ **TURBIDITY:** Turbidity levels at Stn. 720.1 were slightly elevated in May likely due to low flow conditions. Turbidity levels at Stn. 750 were elevated in May following a significant rain event. Turbidity levels at Stn. 760 were elevated in May following significant rainfall and monitors noted shoulder erosion of a roadway near the sample station.
- ♣ **pH:** pH levels were below desirable ranges at all stations on each sampling event.
- ♣ **RECOMMENDED ACTIONS:** Turbidity was elevated at all stations after a significant spring rain event. Specifically, at Stn. 750 an area of shoulder erosion was noted on the field data sheet during the June sampling event. And specifically, at Stn. 760 a large area of shoulder erosion was noted on the field data sheet during the May sampling event. It was noted that both roadways were state roads. Contact the NH Department of Transportation to stabilize the eroded areas and prevent further erosion and sedimentation to the lake. Keep up the great work!

Table 1. 2012 Average Water Quality Data for Newbury Inlet, Cunningham & Bartlett Brooks

Sub-Watershed Name	Station Name	Cond.	Total P	Turb.	pH
		uS/cm	ug/l	ntu	
Newbury Inlet	720.1	37.8	9	1.44	5.74
Cunningham Brook	750	49.9	9	1.73	5.86
Bartlett Brook	760	23.5	15	1.49	5.91

**NH Median Values:** Median values for specific parameters generated from historic lake monitoring data.

**Alkalinity:** 4.9 mg/L

**Chlorophyll-a:** 4.58 mg/m<sup>3</sup>

**Conductivity:** 40.0 uS/cm

**Chloride:** 4 mg/L

**Total Phosphorus:** 12 ug/L

**Transparency:** 3.2 m

**pH:** 6.6

**NH Water Quality Standards:** Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.

**Chloride:** < 230 mg/L (chronic)

**E. coli:** > 88 cts/100 mL – public beach

**E. coli:** > 406 cts/100 mL – surface waters

**Turbidity:** > 10 NTU above natural level

**pH:** 6.5-8.0 (unless naturally occurring)

This report was generated by the NH DES Volunteer Lake Assessment Program (VLAP). For more information contact:

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# VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

## LAKE SUNAPEE, OTTER POND, LEDGE POND, EAGLE ROCK BROOKS,

### JOBS CREEK & OUTLET SUB-WATERSHEDS

#### 2012 DATA SUMMARY

##### OBSERVATIONS AND RECOMMENDATIONS OTTER POND, LEDGE POND, EAGLE ROCK BROOKS & JOBS CREEK SUB-WATERSHEDS (Refer to Table 1)

- ♣ **CONDUCTIVITY/CHLORIDE:** Conductivity was slightly elevated and greater than the NH lake median at Stn. 505. Conductivity was elevated and much greater than the NH lake median at Stns. 510 and 515.1. Iron deposits were noted at Stn. 510 which likely contributed to the elevated conductivity. Conductivity at Stn. 540 was low in May and June, but increased in August, September and October likely due to low flow conditions. Conductivity at Stn. 610 was slightly elevated and greater than the NH lake median.
- ♣ **TOTAL PHOSPHORUS:** Phosphorus levels at Stn. 505 were low throughout the summer. Phosphorus levels at Stn. 510 were low from May through August and October, however were elevated September when stream flow was stagnant. Phosphorus levels at Stn. 515.1 were low throughout the summer. Phosphorus levels at Stn. 540 were elevated in August, September and October following rain events under low flow conditions. Phosphorus levels at Stn. 610 were low in May and June.
- ♣ **TURBIDITY:** Turbidity levels at Stn. 505 were elevated in May and June following rain events. Turbidity levels at Stn. 510 were elevated in September. Organic matter was noted in the sample and stream flow was stagnant. Turbidity levels at Stn. 515.1 were low in May and June. Turbidity levels at Stn. 540 were elevated in May and October following rain events and sediment was noted in the samples. Turbidity levels at Stn. 610 were slightly elevated in May potentially due to pollen or algae.
- ♣ **pH:** pH levels were generally lower at Stn. 540 and tend to fluctuate below desirable levels at all stations.
- ♣ **RECOMMENDED ACTIONS:** Turbidity and/or phosphorus were elevated after rain events at Station 540 indicating stormwater erosion in this sub-watershed. A stream survey and storm event sampling to identify potential sources of phosphorus and sediment erosion is recommended. Do not sample tributaries under stagnant conditions as this causes elevated levels of conductivity, phosphorus and turbidity. Keep up the great work!

Table 1. 2012 Average Water Quality Data for Otter Pond, Ledge Pond, Eagle Rock Brooks, Jobs Creek, & Outlet

Sub-Watershed Name	Station Name	Cond.	Total P	Turb.	pH
		uS/cm	ug/l	ntu	
Otter Pond Brook	505	113.1	8	1.28	6.49
Ledge Pond/Muzzey Brook	510	227.7	16	1.68	6.30
Eagle Rock Brook	515.1	369.0	6	1.62	6.57
Jobs Creek	540	62.7	26	2.20	5.82
Outlet	610	82.6	6	1.65	6.58

**NH Median Values:** Median values for specific parameters generated from historic lake monitoring data.

**Alkalinity:** 4.9 mg/L

**Chlorophyll-a:** 4.58 mg/m<sup>3</sup>

**Conductivity:** 40.0 uS/cm

**Chloride:** 4 mg/L

**Total Phosphorus:** 12 ug/L

**Transparency:** 3.2 m

**pH:** 6.6

**NH Water Quality Standards:** Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.

**Chloride:** < 230 mg/L (chronic)

**E. coli:** > 88 cts/100 mL – public beach

**E. coli:** > 406 cts/100 mL – surface waters

**Turbidity:** > 10 NTU above natural level

**pH:** 6.5-8.0 (unless naturally occurring)

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**VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS**  
**LAKE SUNAPEE, PIKE BROOK SUB-WATERSHED**  
**2012 DATA SUMMARY**

**OBSERVATIONS AND RECOMMENDATIONS PIKE BROOK SUB-WATERSHED** (Refer to Table 1)

- ♣ **CONDUCTIVITY/CHLORIDE:** Conductivity levels in May and June were low and approximately equal to the NH lake median, however conductivity increased at all stations in July, August, September and October likely due to low water level and flow conditions.
- ♣ **TOTAL PHOSPHORUS:** Overall, 2012 phosphorus levels were average at all stations. Phosphorus was slightly elevated at Stn. 800 in July and August after rain events. Phosphorus was slightly elevated at Stn. 800.5 in May and Sept. and the turbidities were also elevated. Phosphorus was slightly elevated at Stn. 800.8 in May and the turbidity was also elevated.
- ♣ **TURBIDITY:** Turbidity levels were elevated and much greater at all Stations in May during conditions of moderate to high stream flows and following a rain event. Turbidity increased at the downstream Stn. 800 and was slightly elevated throughout the summer.
- ♣ **pH:** pH levels were generally lower at Stn. 800.8, and pH tends to fluctuate below desirable levels at all stations.
- ♣ **RECOMMENDED ACTIONS:** Turbidity and phosphorus were generally higher at the downstream Stn. 800. Turbidity and phosphorus levels were generally greater in May during periods of spring runoff and high stream flow. Road sanding practices may contribute to these elevated levels and it is recommended that any sand accumulation along roadsides and drainage ditches from winter road maintenance be removed in the spring. Keep up the great work!

Table 1. 2012 Average Water Quality Data for Pike Brook Sub-Watershed

Sub-Watershed Name	Station Name	Cond.	Total P	Turb.	pH
		uS/cm	ug/l	ntu	
Pike Brook	800	61.1	18	2.14	6.39
Pike Brook	800.5	53.6	14	1.99	6.29
Pike Brook	800.8	53.5	13	1.68	6.00
King Hill Brook	805	70.7	15	1.36	6.35

**NH Median Values:** Median values for specific parameters generated from historic lake monitoring data.

**Alkalinity:** 4.9 mg/L

**Chlorophyll-a:** 4.58 mg/m<sup>3</sup>

**Conductivity:** 40.0 uS/cm

**Chloride:** 4 mg/L

**Total Phosphorus:** 12 ug/L

**Transparency:** 3.2 m

**pH:** 6.6

**NH Water Quality Standards:** Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.

**Chloride:** < 230 mg/L (chronic)

**E. coli:** > 88 cts/100 mL – public beach

**E. coli:** > 406 cts/100 mL – surface waters

**Turbidity:** > 10 NTU above natural level

**pH:** 6.5-8.0 (unless naturally occurring)

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